

Military OCONUS/PCS 2020 Electronics Power Converter Guide

Preparing for an Outside of Continental US, change in station, can be both exciting and stressful. The good news is there are good checklists online from experienced folks, including the Military, to help along.

<https://themilitarywifeandmom.com/moving-overseas-checklist/>

<https://www.move.mil/moving-guide/oconus>

<https://www.military.com/sites/default/files/2017-09/pcs-guide-2017.pdf>

For Military Families with Portable Treasured Electronics There is Good News.

Up until now, OCONUS check lists and Military advice blogs have recommended leaving your treasured electronics at home because mains frequency conversion was expensive and generally unavailable. Thus it was not worthwhile to bring certain electronics equipment. In addition, a standard transformer, which only converts voltage, would often not be enough to assure equipment would work properly and safely.

But now there are new small, lightweight, inexpensive, and precise voltage + frequency converters available that enable you to bring your valued electronics along. <https://www.kccscientific.com/products/>

In this update we will review:

1. What electronics to take, what to leave.
2. Determining the power requirements for your electronic device.
3. Plug style and power needs at Military OCONUS bases.

Electronics to Take, Electronics to Leave

Determine the power in watts required for the electronic device, and then determine if there is a voltage and frequency difference for your destination. You can purchase a voltage and frequency converter before you leave or have one shipped to your destination. Also consider space and weight limitations.

<https://www.kccscientific.com/compare-frequency-converters/>

Leave Large Appliances.

You don't have to worry about bringing your washer and dryer, refrigerator or microwave with you to your OCONUS duty station. The Military will loan these items to you for free for the duration of your overseas tour. You will also receive a couple of transformers for small appliances and electronics that do not have dual voltage capabilities.

Buy Small Appliances at Destination

It is recommended that you purchase small, new or gently-used 220V appliances that you will use regularly, such as coffee pots, toasters, crock pots, and blow dryers from the thrift store or on base.

Take Valued High-End Stereo and Turntables Under 1000 Watts

Take high-end turntables and stereo equipment, if weight and space allotments allow.

With new compact, cost effective, voltage and frequency converters available, it may be worth the investment in power conversion for your high-end audio. The new converters offer voltage AND precise frequency conversion so turntables will have properly regulated speed as they were designed. In addition, the converters reconstruct the local mains power line, so audio components will be supplied with clean power, eliminating local mains power line aberrations.

Take Durable Medical Goods

Take electronic durable medical equipment, that is, equipment used in the home to aid in a better quality of living. These are often small low power comfort homeopathic items like compression boots, massagers, TENS units, CPAP, even remote-control beds.

These items are often expensive or personally-fitted items, and not easily replaced. They now can be properly powered from compact voltage and frequency converters. So if you have an item like this for enhanced health, consider taking them.

Take Low Power, High End Professional Tools

Look into taking professional tools like high-end athletic compression boots, hair clippers, shavers, fans and measurement tools. Often tools of the trade are expensive to replace and professionals have a preference for a particular tool for the job. If you have a tool that is lower power and under 1000 watts, look into the value of taking it with you.

Do not take blow dryers and curling irons. The power requirements are beyond what the newer converters can provide and often to replace these items at your destination is much less than the cost of a converter. If you purchase transformers for these items they will often shut down and/or overheat. Keep it simple and buy replacements at your destination.

Take Valued Electronic Heirlooms and Hobbies Under 1000 Watts

If weight and space allocations allow, take that heirloom electric clock or hobby item, like model trains. If these electronics bring you comfort and make you feel at home, consider taking them along with the appropriate voltage and frequency converter to power them

Leave Large Tools, Garden Tools and Lawn Mowers

You may not be responsible for yard care and the transformers and converters will not be worthwhile purchasing to convert these items.

How to Determine The Power Requirements of Your Electronics

Look for a tag on your device on the back or bottom to determine the power, voltage and frequency needed for it to operate properly. If there is no tag, search online for the model number and item. Often the product manual will be online and list the power requirements. If you cannot determine on your own, contact us and we will help you determine what is needed and which converter would be best. <https://www.kccscientific.com/contact/>

1. **Power** requirement is designated in watts, or W. You will need a converter with power equal or above the watts your device requires. If the power of the converter is lower than the required amount for your electronic device, it will not work. So for a 30-watt electronic device, a 40-watt converter is acceptable but not the opposite. You cannot operate a 60-watt device on a 40-watt converter, for example.

- Voltage** is either 115V or 230V AC depending on where you are powering your device in the world. In most of North America the allowable voltage ranges from 105 to 125 V AC. Most of countries outside the continental United States operate on 210V to 250V AC. When moving to the 230V AC power grid you will need to “step down” the voltage to your device from the local mains power line (or the outlet). If your device does not have a small motor in it that rotates or vibrates, a *transformer*, which only converts voltage, may work. If it has a motor in it that rotates or vibrates, it may need a *voltage and frequency converter* as well.
- Frequency**, designated in Hertz or Hz, determines the number of times a synchronous motor in your electronic device rotates or vibrates per second. Frequency is how often the mains power line polarity alternates back and forth per second. Electronics like turntables and clocks are dependent on the frequency to run at the exact right speed. Frequency in the United States is 60Hz, in most of the rest of the world 50Hz. There are exceptions so check the chart below for the requirements for your relocation.

Power for Military Bases Located Outside The Continental United States

Army	Plug	Voltage	Frequency
Belgium	C E	230 V	50Hz
Germany	C F	230V	50Hz
Italy	C F L	230V	50Hz
Korea South	F	220V	60Hz
Japan East	A B	100V	50Hz
Camp Zama	A B	100V	50Hz
Torri Station	A B	100V	60Hz

Air Force	Plug	Voltage	Frequency
Germany	C F	230V	50Hz
Guam	A B	110V	60Hz
Italy	C F L	230V	50Hz
Korea South	F	220V	60Hz
Spain	C F	230V	50Hz
Turkey	C F	230V	50Hz
United Kingdom	G	230V	50Hz
Japan East	A B	100V	50Hz
Kadena Air Base	A B	100V	60Hz
Japan West	A B	100V	60Hz
Misawa Air Base	A B	100V	50Hz
Yokota Airbase	A B	100V	50Hz

Marines	Plug	Voltage	Frequency
Japan East	A B	100V	50Hz
Camp S.D. Butler	A B	100V	60Hz
Air Station Iwaskuni Base	A B	100V	60Hz

Navy	Plug	Voltage	Frequency
Bahrain	G	230V	50Hz
Cuba	A B C L	110V 230V	60Hz
Greece	C F	230V	50Hz
Italy	C F L	230V	50Hz
Korea South	F	220V	60Hz
Singapore	G	230V	50Hz
Spain	C F	230V	50Hz
United King- dom	G	230V	50Hz
Japan East	A B	100 V	50Hz
Sasebo Base	A B	100V	60Hz
Japan West	A B	100V	60Hz
Yokosuka Base	A B	100V	50Hz
Atsugi Base	A B	100V	50Hz

Japan is unique in that the Eastern half of the country operates on 100 volt (V) 50 Hertz (Hz) and the West operates on 100V 60Hz.

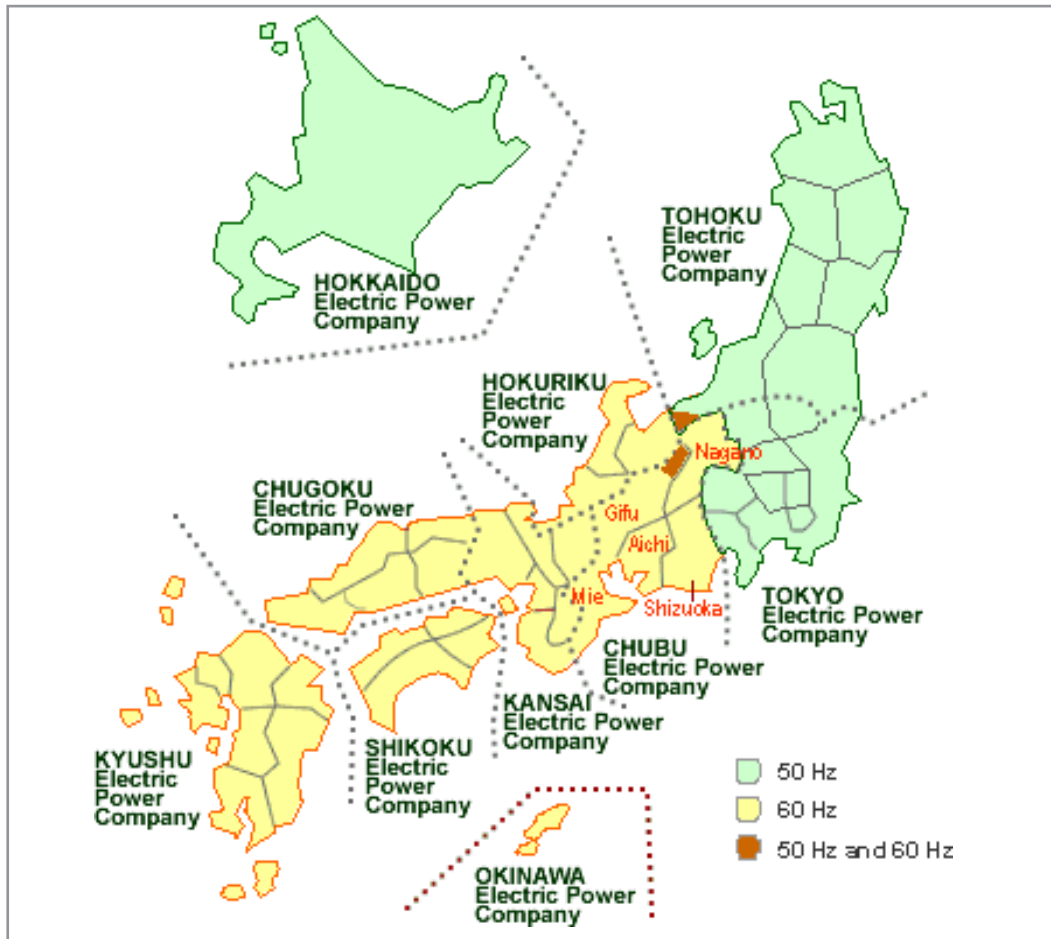
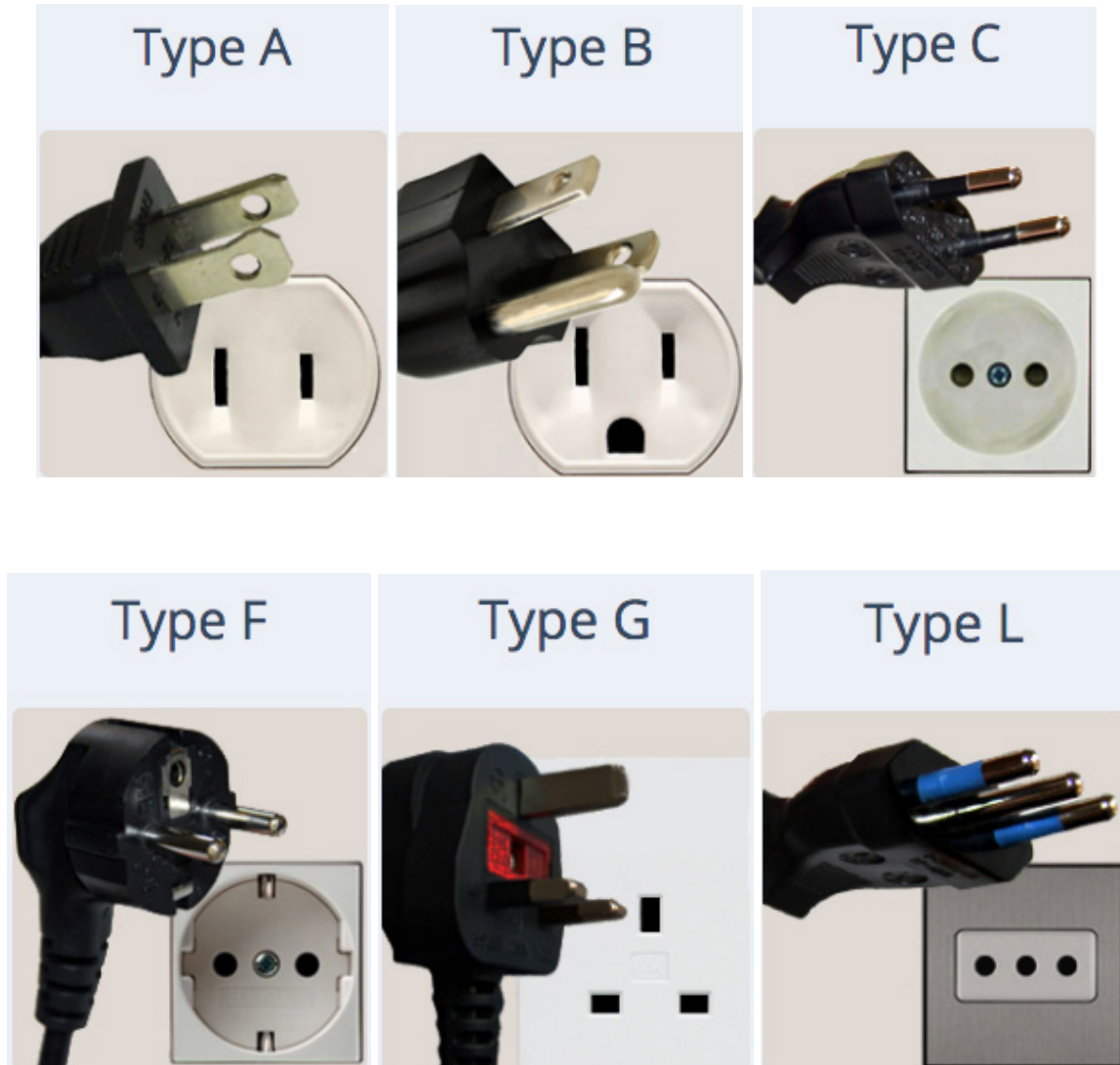


Image from: http://www.furniturejapan.com/useful_info/electricity1.html

Japan power grid map. East Japan has 100V 50Hz, West Japan has 100V 60Hz.

Plug Types A, B, C, F, G, L for Military Bases



Images from Conrad McGregor: <https://www.worldstandards.eu/electricity/plug-voltage-by-country>

If you are relocating to a country or base not on the list take a look at the world standards for electricity to determine the adapter plugs, voltage and frequency of the destination country:

<https://www.worldstandards.eu/electricity/plug-voltage-by-country>

Finally, when considering what items to take, ask yourself:

- Does it serve an important purpose?
- Am I currently using it?
- Does it draw emotion or make you feel good?

Understandably, there are some things you don't need to take, but then there are those that will make your overseas adventure more comfortable. Consider bringing one thing you absolutely love and use regularly—space allowing. Two to three years is a long time, and you may wish you brought that valued item along.

If you need help determining whether you can operate a valued electronic device overseas, give us a call toll free or contact us: 1.833.502.6049

<https://www.kccscientific.com/contact/>

We ship worldwide as well as to PO Boxes. Have a great adventure and thank you very much for your service!

KCC Scientific LLC.